Chapter 6 Integrated Data and Analysis: Informed and Transparent Decision-Making

Related Sessions at the Water Plan Plenary

October 29th 10:15 am – Applying the Sustainability Indicators Framework

October 30th 11:15 am - Central Valley Vulnerability Analysis and Response Strategies

About This Chapter

Chapter 6 describes a roadmap and key actions needed to improve water resources information and analysis for integrated water management by State government, particularly DWR, and many other research institutions, federal, tribal, regional, and local water management entities. It describes how quality information, supporting analysis, and public engagement can inform the key policy components of the CWP including desired outcomes, core values, statements of intent, and recommendations. The chapter concludes with needed enhancements to stakeholder process, analytical tools, and information needed to support IWM and more transparent decision-making. This chapter is organized into the following sections:

- Informing California Water Plan Policy with Quality Information and Analysis.
- Integrated Data and Analysis.
- Technical Enhancements to Support Integrated Data and Analysis.

What is new / different from Update 2009? / What has changed since last draft?

The core content from Update 2009 is largely unchanged. Content was added to provide better linkage between the Water Plan policy questions and technical improvements. Removed section providing examples of related efforts, but highlight key organizations involved with providing water resources data and analytical tools. The Chapter was reorganized to distinguish between the following three activities necessary to provide integrated data and analysis:

- Linking collaborative processes with technical enhancements
- Providing effective analytical tools
- Improving and sharing information

Linking collaborative processes with technical enhancements

Key features of text

Section describes the procedures used by the CWP to link collaborative discussions around water policy with technical information.

Enhancement: Implement Shared Vision Planning - DWR is pursuing the approach and methods of Shared Vision Planning in the CWP to achieve these technical goals and outcomes:

- Achieve better integration and consistency with other planning activities.
- Obtain consensus on quantitative deliverables.
- Build a common conceptual understanding of the water management system.
- Improve transparency of the California Water Plan information.

Recommended Action 10.11 - Implement Shared Vision Planning or similar collaborative modeling approaches to integrate tried-and-true planning principles, systems modeling, and collaboration into a practical forum for making more informed and durable water resources management decisions.

Providing Effective Analytical Tools

Key features of text

Analytical approaches need to be improved to quantify where scientific uncertainties exist and to effectively, allow for collaborative decision-making to help overcome political and social disagreements, and identify actions that will have sustainable outcomes.

Enhancement: Develop a Common Conceptual Understanding of the Water Management System – Collaboratively develop a way to conceptually describe the different pieces of the water management system and how the pieces interact with each other.

Recommended Action 10.2 - Develop a shared conceptual understanding, analytical framework, and quantitative description of how California watersheds and water management systems are represented in analytical tools at different spatial and temporal scales for use by federal, State, tribal, regional, and local agencies and organizations.

Enhancement: Develop Common Schematics of the Water Management System -Collaboratively develop a common schematic of California's water management system to show the connectivity of California's water resource systems and to serve as a repository of information where data can be shared among governmental and non-governmental institutions.

Recommended Action 10.10 - Support establishment of an open, organized, and documented quantitative representation of the State's intertied water system to serve as a common and standardized data platform for model development and analysis by federal, State, tribal, regional, and local water planners.

Enhancement: Establish Modeling Protocols and Standards – Develop modeling protocols and standards to provide guidance and common accepted practices as models are developed and used to solve California's water and environmental problems.

Recommended Action 10.3 - Support the California Water and Environmental Modeling Forum (CWEMF) in updating its 2000 modeling protocols and standards to provide more current guidance to water stakeholders and decision-makers, and their technical staff, as models are developed and used to solve California's water and environmental problems.

Enhancement: Supporting Analysis for the California Water Plan – Implement technical enhancements relevant to production of the CWP used to quantify core CWP content described in the Assumptions and Estimates Report.

Recommended Action 10.1 - Expand the Central Valley Planning Area scale analytical tool and scenario studies developed during Update 2013 to assess future vulnerabilities and management responses in the other hydrologic regions for the California Water Plan Update 2018. The regional analytical tools and analysis should include evaluation of water supply reliability, water efficiency and new water supply development, regional water balances, improvements in regional self-reliance, reduced regional reliance on the Delta, and reliability of Delta exports. Over time, these tools should be enhanced to include water quality, economic, and biological metrics, as well as to evaluate a greater number of the resource management strategies in Volume 3.

Improving and Sharing Information

Key features of text

A wealth of information already exists, but remains siloed in multiple institutions that do not share information with each other. Some entities like the Metropolitan Water District of Southern California have made inroads into effective integration of information from its water retailers. In contrast, the CWP does not have fully transparent linkage between the information collected from local entities and what is reported in the Water Plan.

Enhancement: Reduce Information Gaps and Limitations – Comprehensive regional flow diagrams and water balances require more detailed information on land and water use, surface and groundwater supplies, and the ability to differentiate between applied and consumptive water uses.

Recommended Action 10.6 - Improve drought planning and preparation by:

- **10.6.1** Developing drought metrics (indicators) with the goal of providing early detection and determination of drought severity.
- **10.6.2** Developing and improving monitoring of key indicators of regional water vulnerabilities.
- **10.6.3** Improving the system of stream gauging for the purpose of managing water resources in low-flow conditions and improving the accuracy of seasonal runoff and water supply forecasts.

10.6.4 - Improving groundwater monitoring and assessment by providing technical and financial support to develop real-time monitoring of groundwater data.

10.6.5 - Expanding the existing surface water and groundwater monitoring networks, where needed.

Recommended Action 10.8 - Sponsor science-based, watershed adaptation research and pilot projects to address water management and ecosystem needs, improve aquatic species and habitat monitoring, and develop an accessible and standardized database for reporting watershed and headwater conditions.

Enhancement: Develop a Strategic Plan to Improve Water Management Information -Strategy needed to improve water-related information should include a method to identify and unify institutional data sets, and also to state the objectives of unifying data sets clearly and how information exchange can benefit the diverse needs of different institutions.

Recommended Action 10.4 - Establish standards and protocols for data collection and management that facilitate sharing of information among agencies and modeling studies. This would include identifying and cataloging existing water data for California, creating a water data dictionary, and developing standards and metadata for water data monitoring, collection, and reporting.

Recommended Action 10.5 - Develop a strategic plan for data management that prioritizes long-term improvements in the monitoring network considering risk-based decision-making. and that identifies adequate resources for long-term maintenance and accessibility to water management information.

Recommended Action 10.7 - Develop a strategy and implementation plan for measuring and reporting water use and water quality data. The accurate measurement, timely publication, and broad distribution of water use and water quality will facilitate better water planning and management, especially in the context of managing aguifers more sustainably, and are necessary for the development of more accurate hydrologic budgets.

Enhancement: Integrating Urban Water Management Plans, Integrated Regional Water Management Plans, and the California Water Plan - Better integration is needed to ensure that plans are using the best available information so that decision-makers can have confidence in water policy decisions and the public can have confidence in these investments.

Enhancement: Water Planning Information Exchange - DWR is building an online information exchange system called Water PIE to share water management information among state, regional, and local agencies and governments.

Recommended Action 10.9 - Develop the Water Planning Information Exchange (Water PIE) to facilitate sharing data and networking existing databases among federal, State, tribal, regional, and local agencies and governments; nonprofit organizations; and citizen monitoring efforts. The Water PIE data framework will help improve analytical capabilities and develop timely surveys of statewide land use, water use, and estimates of future implementation of resource management strategies. Potential beneficiaries of Water PIE include urban water

management plans, agricultural water management plans, groundwater management plans, IRWM plans, and the CWP.

What public input has been received to date?

Initial outline for Chapter discussed with the Water Plan public advisory committee as part of the Update 2013 scoping.

Conducted scoping sessions with the Statewide Water Analysis Network technical experts on purpose and motivation and chapter outline.

Questions to Consider

- 1. What general questions do you have about the purpose and motivation of Chapter 6, Integrated Data and Analysis, and each of the subsections? Refer to the section above, "About this Chapter", and the "Key features of text" sections.
- 2. What comments do you have on the proposed enhancements?
- 3. What comments do you have on the proposed recommendations?
- 4. What other comments would you like to share about this Chapter?